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CLIPPEDIMAGE= JP406283639A

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TITLE: HYBRID INTEGRATED CIRCUIT

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INVENTOR-INFORMATION:

NAME

OTA, SUSUMU

OKAWA, KATSUMI

SAKAMOTO, NORIAKI

ASSIGNEE-INFORMATION:

NAME

SANYO ELECTRIC CO LTD

COUNTRY

N/A

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ABSTRACT:

PURPOSE: To shorten the lengths of wires as much as possible by mounting one copper plate to which a power element is firmly fixed on a substrate and arranging other copper plates upon the one copper plate in a separating state.

CONSTITUTION: After forming an inverter circuit on a metallic substrate 1 with an insulating layer 2 in between, a first power supply line, second power supply line, and output line for supplying current to a load are respectively formed of first, second, and third copper plates 4, 5, and 6A. A source- and sink-side switching elements 7 and 8 are firmly fixed onto the first and third

copper plates 4 and 6A, respectively. An external lead terminal is formed by bending part of the copper plate 6A. The first and third copper plates 4 and 6A are firmly fixed onto the substrate 1 and the second copper plate 5 is positioned at a distance from the surface of the substrate 1. Therefore, the occurrence of current losses at the external lead terminal fixing section can be suppressed and, at the same time, the size of this power hybrid integrated circuit can be reduced.

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JP-A-6-283639

Hybrid IC

[Detailed Explanation of the Invention]

[Embodiments]

5 [0021]

The subject matter of the present invention is to directly fix both the first and third copper plates (4) and (6) on which switching elements are provided on a substrate (1) and to locate the second copper plate (5) on which switching element is not provided, in a position away from the substrate (1) surface. In other words, the second copper plate (5) is located away from and overlapped on the third copper plate (6) connected with the second copper plate. Specifically, the second copper plate (5) is supported by a case member (10), which is described later, and when the substrate (1) and case member (10) are integrated, the second copper plate (5) is located so as to overlap a part of the third copper plate (6). When the second copper plate (5) is located away from the third copper plate (6), the second copper plate and the switching element on the third copper plate (6) are connected with a wire. Therefore, attention must be paid so that the second copper plate (5) and the switching element on the third copper plate (6) may not be entirely overlapped. In the drawings,

it looks that the second and third copper plates (5) and (6) are fairly away from each other, actually the distance between the second and third copper plates (5) and (6) is approximately 2 to 5 mm.

5

[Brief Description of the Drawings]

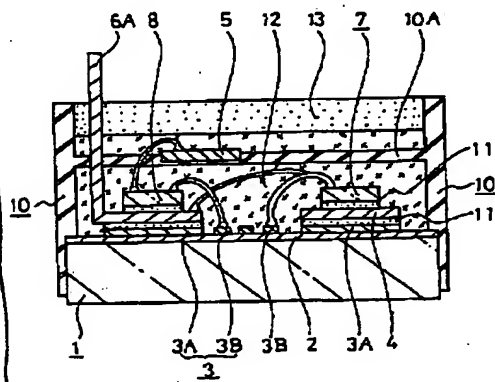
[Explanation of the Codes]

- (1) Metal substrate
- (2) Insulator layer
- 10 (3) Conductive path
- (4) First copper plate
- (5) Second copper plate
- (6) Third copper plate
- (7)&(8) Switching elements
- 15 (9)&(11) Solder layer
- (10) Case member
- (10A) Bar

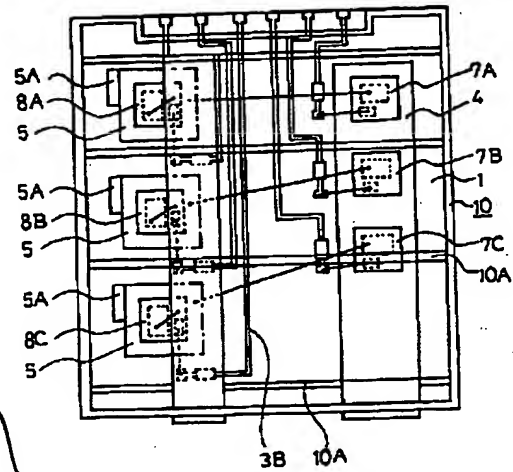
- (1) 金属基板
 (2) 絶縁層
 (3) 導電路
 (4) 第1の銅板
 (5) 第2の銅板

- (6) 第3の銅板
 (7) (8) スイッチング素子
 (9) (11) 半田層
 (10) ケース材
 (10A) バー

【図1】 FIG. 1



【図2】 FIG. 2



【図3】

